REMARKS

Claims 47-50, 53-58, 61-66, 87, 88, 91-98, 101-106, 108-113, 115, 118-123, 125 and 126 are pending. In this Response, claims 87, 93, 97 and 103 have been amended.

I. SECTION 112, FIRST PARAGRAPH REJECTIONS

The Decision on Appeal sustained the rejection of claims 47-50, 53-58, 61-66, 87, 88, 91-98, 101-106, 108-113, 115, 118-123, 125 and 126 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors at the time the application was filed had possession of the claimed invention.

The Examiner's assertion that "Each of the independent claims set forth a detection circuit that determines whether the head is within an acceptable flying height range independently of flying height data obtained from the disk drive at 'other than the substantially constant flying height', claim 87 or at 'a predetermined flying height', claim 97" was sustained.

Claims 87, 93, 97 and 103 have been amended to delete these phrases.

Therefore, Applicant respectfully requests that these rejections be withdrawn.

II. SECTION 102 REJECTIONS – BROWN ET AL.

Claims 87, 88, 93, 97, 98, 103, 110, 111, 120 and 121 are rejected under 35 U.S.C. § 102(b) as being anticipated by *Brown et al.*

Brown et al. discloses an apparatus for calculating flying height. The flying height calculation involves taking a first measurement where the first flying height is sought, a second measurement at a predetermined reference height (such as zero clearance), and performing a calculation based on these measurements. For instance, a first measurement (or reference measurement) is taken at a zero clearance, defined as where the slider contacts the disk, a second

measurement at a different flying height is then taken, and the change in flying height occurring between the first and second measurements is then calculated.

In a first embodiment, a single signal of constant periodicity is written over a predetermined area of the recording medium, a first signal is sensed at a first flying height from the predetermined area, the flying height is reduced to a second flying height of substantially zero, a second signal is sensed at the second flying height, and the first flying height is calculated as a ratio, expressed in decibels, of the first and second signals times the wavelength divided by a constant (col. 2, lines 31-42).

In a second embodiment, a plurality of signals of constant periodicity are written over the predetermined area of the recording medium, first and second signals with first and second wavelengths are simultaneously sensed at the first flying height, the flying height is reduced to a second flying height of substantially zero, third and fourth signals with the first and second wavelengths are simultaneously sensed at the second flying height, and the first flying height is calculated as a constant times the product of two terms. The first term is the product of the two wavelengths divided by the difference between the two wavelengths, and the second term is the ratio of the first and second signals, expressed in decibels, subtracted from the ratio of the third and fourth signals, expressed in decibels (col. 2, lines 43-58).

In a third embodiment, at least one signal of constant periodicity is written over the predetermined area so that the readback signal has a spectral content comprising a plurality of different frequencies, first and second signals with first and second wavelengths are simultaneously sensed at the first flying height, the flying height is reduced to a second flying height of substantially zero, third and fourth signals with the first and second wavelengths are sensed at the second flying height, and the first flying height is calculated as the product of two terms. The first term is a constant times a velocity divided by the difference in frequency between the first and second signals. The second term is the difference of the ratio, expressed in decibels, of the first and second signals at the first and second wavelengths and the ratio, expressed in decibels, of the third and fourth signals at the first and second wavelengths (col. 2, line 59 to col. 3, line 14).

Brown et al. discloses that the predetermined area of the disk where the signal is recorded is preferably a part of landing area tracks 42 and 44 but could as well be in one of the data track areas 46 or 48. *Brown et al.* also discloses that the dual-wavelength method requires recording two magnetic wavelengths either on adjacent tracks or preferably interleaved on one track or track segment.

Claim 87 recites "a detection circuit that determines whether the head is within an acceptable flying height range in response to the first and second data patterns while the head is at a substantially constant flying height."

Claim 97 recites "a detection circuit that determines whether the head is within an acceptable flying height range in response to the first and second data patterns without moving the head to a substantially different flying height."

Brown et al. calculates the flying height by adjusting the clearance of the slider over the disks to a reference clearance, such as zero clearance. The reference fly height values known by the previous determination are obtained by adjusting the flying height to a known reference value (such as zero clearance) that is different than the unknown flying height, and the reference flying height values are used to calculate the unknown flying height. Claims 87 and 97 explicitly preclude this approach.

In sustaining this rejection, the Examiner states that "Brown et al. teaches in column 7 that two distinct frequency signals can be recorded on a single track which are then read to form a readback ratio that is then compared to a zero clearance value to determine if a head is within an acceptable flying height. This discussion satisfies all the limitations as set forth in claims 87, 93, 97 and 103." Applicant disagrees. The Examiner has not even attempted to explain how *Brown et al.* teaches the limitations discussed above.

Moreover, the Board of Patent Appeals and Interferences rejected this position in the Decision on Appeal. The Board stated as follows:

> As argued by appellants, the determination of flying height in Brown requires that the drive be moved to a different reference flying height such as zero clearance and that additional measurements be made at the zero clearance flying height.

In view of the Board's Decision, the Examiner is precluded from taking the position that *Brown et al.* discloses a detection circuit that determines whether the head is within an acceptable flying height range in response to the first and second data patterns (1) while the head is at a substantially constant flying height (claim 87), or (2) without moving the head to a substantially different flying height (claim 97).

For this reason alone, claims 87 and 97 clearly distinguish over *Brown et al.*

Claims 87 and 97 also recite that "the first and second data patterns are located in separate non-overlapping circumferential portions of the first track."

Brown et al. fails to disclose first and second signals with first and second frequencies used for fly height detection be placed in separate non-overlapping circumferential portions of a track. Instead, the first and second signals are either placed on adjacent tracks or are interleaved with on another on a track.

Under 35 U.S.C. § 102, anticipation requires that each and every element of the claimed invention be disclosed in the prior art. *Akzo N.V. v. United States International Trade Commission*, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987). That is, the reference must teach every aspect of the claimed invention. M.P.E.P. § 706.02. Anticipation cannot be sustained by ignoring claim elements.

Therefore, Applicant respectfully requests that these rejections be withdrawn.

III. SECTION 103 REJECTIONS – BROWN ET AL. AND GYI ET AL.

Claims 92, 102, 108, 109, 112, 115, 118, 119, 122, 125 and 126 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Brown et al.* in view of *Gyi et al.* (U.S. Patent No. 4,146,911). Applicant respectfully submits that these rejections are moot for the reasons given above.

IV. CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance. Should any issues remain, the Examiner is encouraged to telephone the undersigned attorney.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on May 10, 2004.

D Sigmond — 5/10/04

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Respectfully submitted,

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